

10/634,713

2

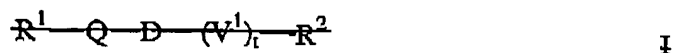
PC25298A

AMENDMENTS TO THE CLAIMS

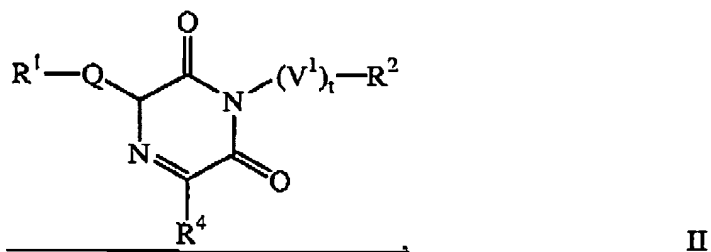
The following listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of claims:

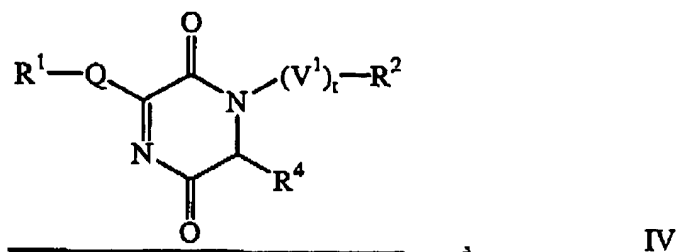
1 (currently amended). A compound of Formula I



A compound of Formula II or IV



or



or a pharmaceutically acceptable salt thereof,
wherein:

R^1 and R^2 independently are selected from:

- C₁-C₆ alkyl;
- Substituted C₁-C₆ alkyl;
- C₂-C₆ alkenyl;
- Substituted C₂-C₆ alkenyl;
- C₂-C₆ alkynyl;

10/634,713

3

PC25298A

Substituted C₂-C₆ alkynyl;
C₃-C₆ cycloalkyl;
Substituted C₃-C₆ cycloalkyl;
C₃-C₆ cycloalkyl-(C₁-C₆ alkylene);
Substituted C₃-C₆ cycloalkyl-(C₁-C₆ alkylene);
3- to 6-membered heterocycloalkyl;
Substituted 3- to 6-membered heterocycloalkyl;
3- to 6-membered heterocycloalkyl-(C₁-C₆ alkylene);
Substituted 3- to 6-membered heterocycloalkyl-(C₁-C₆ alkylene);
Phenyl-(C₁-C₆ alkylene);
Substituted phenyl-(C₁-C₆ alkylene);
Naphthyl-(C₁-C₆ alkylene);
Substituted naphthyl-(C₁-C₆ alkylene);
5-, 6-, 9-, and 10-membered heteroaryl-(C₁-C₆ alkylene);
Substituted 5-, 6-, 9-, and 10-membered heteroaryl-(C₁-C₆ alkylene);
Phenyl;
Substituted phenyl;
Naphthyl;
Substituted naphthyl;
5-, 6-, 9-, and 10-membered heteroaryl;
Substituted 5-, 6-, 9-, and 10-membered heteroaryl;
R³O-(C₁-C₆ alkylene);
Substituted R³O-(C₁-C₆ alkylene);
Phenyl-O-(C₁-C₈ alkylene);
Substituted phenyl-O-(C₁-C₈ alkylene);
Phenyl-S-(C₁-C₈ alkylene);
Substituted phenyl-S-(C₁-C₈ alkylene);
Phenyl-S(O)-(C₁-C₈ alkylene);
Substituted phenyl-S(O)-(C₁-C₈ alkylene);
Phenyl-S(O)₂-(C₁-C₈ alkylene); and

10/634,713

4

PC25298A

Substituted phenyl-S(O)₂-(C₁-C₈ alkylenyl);

wherein R¹ and R² are not both selected from:

C₁-C₆ alkyl;

C₂-C₆ alkenyl;

C₂-C₆ alkynyl; and

C₃-C₆ cycloalkyl;

Each R³ independently is selected from:

H;

C₁-C₆ alkyl;

Substituted C₁-C₆ alkyl;

C₃-C₆ cycloalkyl;

Substituted C₃-C₆ cycloalkyl;

Phenyl-(C₁-C₆ alkylenyl);

Substituted phenyl-(C₁-C₆ alkylenyl);

Naphthyl-(C₁-C₆ alkylenyl);

Substituted naphthyl-(C₁-C₆ alkylenyl);

5-, 6-, 9-, and 10-membered heteroaryl-(C₁-C₆ alkylenyl);

Substituted 5-, 6-, 9-, and 10-membered heteroaryl-(C₁-C₆ alkylenyl);

Phenyl;

Substituted phenyl;

Naphthyl;

Substituted naphthyl;

5-, 6-, 9-, and 10-membered heteroaryl;

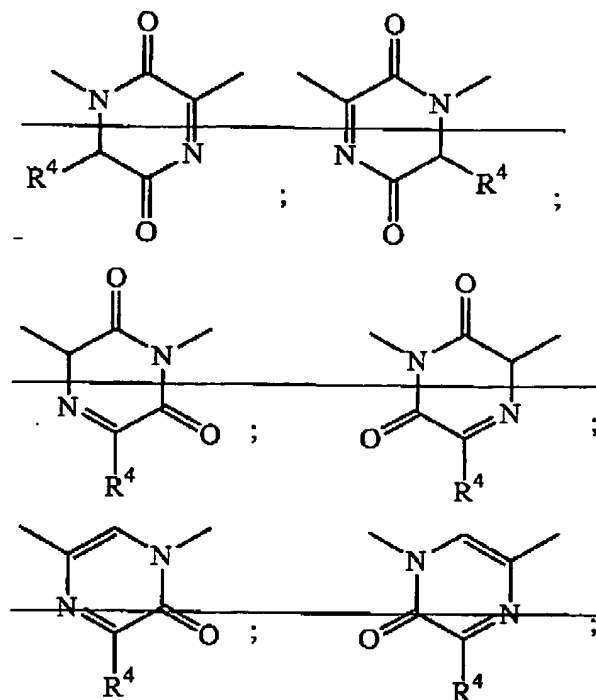
Substituted 5-, 6-, 9-, and 10-membered heteroaryl;

~~D is a heteromonocyclic diradical:~~

10/634,713

5

PC25298A



Each R⁴ independently is selected from:

H;
 F;
 CH₃;
 CF₃;
 C(O)H;
 CN;
 HO;
 CH₃O;
 C(F)H₂O;
 C(H)F₂O; and
 CF₃O;

t is an integer of 0 or 1;

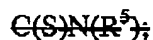
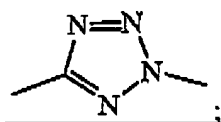
V¹ is selected from:

~~a 5-membered heteroarylenyl;~~
~~CH₂C=C;~~

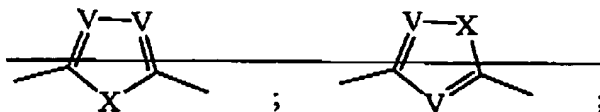
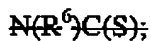
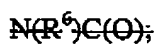
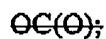
10/634,713

6

PC25298A

V¹ is

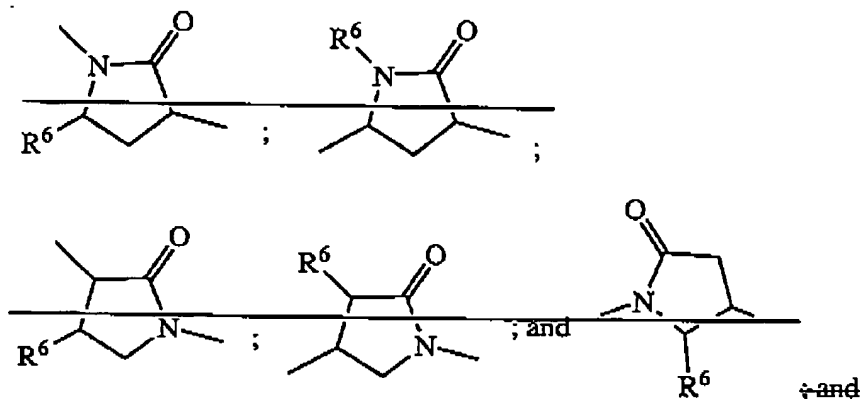
Q, when bonded to a nitrogen atom in group D, is selected from:



10/634,713

7

PC25298A



~~Q, when bonded to a carbon atom in group D, is as defined above and may further be selected from:~~

~~OCH₃;~~

~~N(R⁶)CH₃;~~

~~trans-(H)C=C(H);~~

~~cis-(H)C=C(H);~~

~~C≡C;~~

~~CH₂C=C; and~~

~~CF₂C=C;~~

~~Each X independently is O, S, N(H), or N(C₁-C₆-alkyl);~~

~~Each V independently is C(H) or N;~~

~~Each R⁵ independently is H or C₁-C₆-alkyl;~~

~~Q is N(R⁶)C(O) or C≡C;~~

~~R⁶ is H, C₁-C₆ alkyl, C₃-C₆ cycloalkyl; 3- to 6-membered heterocycloalkyl;~~

~~phenyl; benzyl; or 5- or 6-membered heteroaryl;~~

~~Each "substituted" group contains from 1 to 4 substituents, each independently on a carbon or nitrogen atom, independently selected from:~~

~~C₁-C₆ alkyl;~~

~~C₂-C₆ alkenyl;~~

~~C₂-C₆ alkynyl;~~

10/634,713

8

PC25298A

C₃-C₆ cycloalkyl;
C₃-C₆ cycloalkylmethyl;
Phenyl;
Phenylmethyl;
3- to 6-membered heterocycloalkyl;
3- to 6-membered heterocycloalkylmethyl;
cyano;
CF₃;
(C₁-C₆ alkyl)-OC(O);
HOCH₂;
(C₁-C₆ alkyl)-OCH₂;
H₂NCH₂;
(C₁-C₆ alkyl)-N(H)CH₂;
(C₁-C₆ alkyl)₂-NCH₂;
N(H)₂C(O);
(C₁-C₆ alkyl)-N(H)C(O);
(C₁-C₆ alkyl)₂-NC(O);
N(H)₂C(O)N(H);
(C₁-C₆ alkyl)-N(H)C(O)N(H);
N(H)₂C(O)N(C₁-C₆ alkyl);
(C₁-C₆ alkyl)-N(H)C(O)N(C₁-C₆ alkyl);
(C₁-C₆ alkyl)₂-NC(O)N(H);
(C₁-C₆ alkyl)₂-NC(O)N(C₁-C₆ alkyl);
N(H)₂C(O)O;
(C₁-C₆ alkyl)-N(H)C(O)O;
(C₁-C₆ alkyl)₂-NC(O)O;
HO;
(C₁-C₆ alkyl)-O;
CF₃O;
CF₂(H)O;

10/634,713

9

PC25298A

 $\text{CF}(\text{H})_2\text{O}$; H_2N ; $(\text{C}_1\text{-C}_6 \text{ alkyl})\text{-N}(\text{H})$; $(\text{C}_1\text{-C}_6 \text{ alkyl})_2\text{-N}$; O_2N ; $(\text{C}_1\text{-C}_6 \text{ alkyl})\text{-S}$; $(\text{C}_1\text{-C}_6 \text{ alkyl})\text{-S}(\text{O})$; $(\text{C}_1\text{-C}_6 \text{ alkyl})\text{-S}(\text{O})_2$; $(\text{C}_1\text{-C}_6 \text{ alkyl})_2\text{-NS}(\text{O})_2$; $(\text{C}_1\text{-C}_6 \text{ alkyl})\text{-S}(\text{O})_2\text{-N}(\text{H})\text{-C}(\text{O})\text{-(C}_1\text{-C}_8 \text{ alkylenyl})_m$; and $(\text{C}_1\text{-C}_6 \text{ alkyl})\text{-C}(\text{O})\text{-N}(\text{H})\text{-S}(\text{O})_2\text{-(C}_1\text{-C}_8 \text{ alkylenyl})_m$;

wherein each substituent on a carbon atom may further be independently selected from:

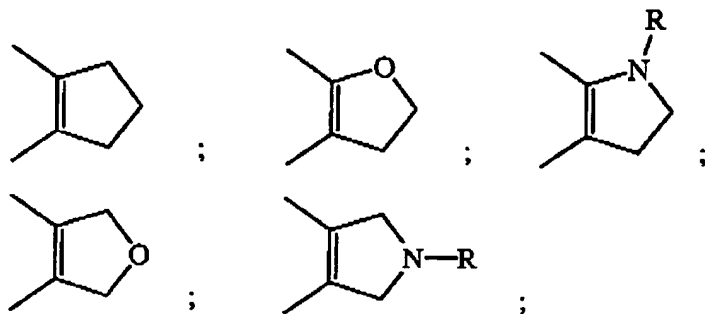
Halo;

 HO_2C ; and

OCH_2O , wherein each O is bonded to adjacent carbon atoms to form a 5-membered ring;

wherein 2 substituents may be taken together with a carbon atom to which they are both bonded to form the group $\text{C}=\text{O}$;

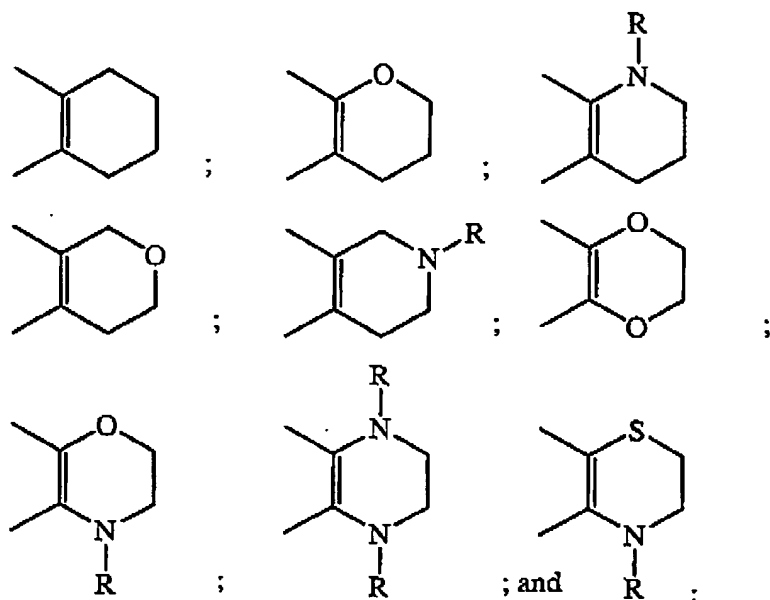
wherein two adjacent, substantially sp^2 carbon atoms may be taken together with a diradical substituent to form a cyclic diradical selected from:



10/634,713

10

PC25298A



Each m independently is an integer of 0 or 1;

R is H or C_1-C_6 alkyl;

wherein each 5-membered heteroaryl independently is a 5-membered ring containing carbon atoms and from 1 to 4 heteroatoms selected from 1 O, 1 S, 1 NH, 1 $N(C_1-C_6 \text{ alkyl})$, and 4 N, wherein the O and S atoms are not both present, and wherein the heteroaryl may optionally be unsubstituted or substituted with 1 substituent selected from fluoro, methyl, hydroxy, trifluoromethyl, cyano, and acetyl;

wherein each heterocycloalkyl is a ring that contains carbon atoms and 1 or 2 heteroatoms independently selected from 2 O, 1 S, 1 $S(O)$, 1 $S(O)_2$, 1 N, 2 $N(H)$, and 2 $N(C_1-C_6 \text{ alkyl})$, and wherein when two O atoms or one O atom and one S atom are present, the two O atoms or one O atom and one S atom are not bonded to each other, and wherein the ring is saturated or optionally contains one carbon-carbon or carbon-nitrogen double bond;

wherein each 5-membered heteroaryl contains carbon atoms and from 1 to 4 heteroatoms independently selected from 1 O, 1 S, 1 $N(H)$, 1 $N(C_1-C_6 \text{ alkyl})$, and 4 N, and each 6-membered heteroaryl contains carbon atoms

10/634,713

11

PC25298A

and 1 or 2 heteroatoms independently selected from N, N(H), and N(C₁-C₆ alkyl), and 5- and 6-membered heteroaryl are monocyclic rings; and 9- and 10-membered heteroaryl are 6,5-fused and 6,6-fused bicyclic rings, respectively, wherein at least 1 of the 2 fused rings of a bicyclic ring is aromatic, and wherein when the O and S atoms both are present, the O and S atoms are not bonded to each other;

wherein with any (C₁-C₆ alkyl)₂-N group, the C₁-C₆ alkyl groups may be optionally taken together with the nitrogen atom to which they are attached to form a 5- or 6-membered heterocycloalkyl; and

wherein each group and each substituent recited above is independently selected.

2-5 (canceled).

6 (currently amended). The compound according to ~~any one of Claims 1 to 5~~ claim 1, or a pharmaceutically acceptable salt thereof, wherein at least one of R¹ and R² is independently selected from:

Phenyl-(C₁-C₆ alkylenyl); and

Substituted phenyl-(C₁-C₆ alkylenyl);

wherein each group and each substituent is independently selected.

7 (currently amended). The compound according to ~~according to any one of Claims 1 to 5~~ claim 1, or a pharmaceutically acceptable salt thereof, wherein at least one of R¹ and R² is independently selected from:

5-, 6-, 9-, and 10-membered heteroaryl-(C₁-C₆ alkylenyl); and

Substituted 5-, 6-, 9-, and 10-membered heteroaryl-(C₁-C₆ alkylenyl);

wherein each heteroaryl contains carbon atoms and from 1 to 4 heteroatoms independently selected from 1 O, 1 S, 1 N(H), 1 N(C₁-C₆ alkyl), and 4 N, and 5- and 6-membered heteroaryl are monocyclic rings and 9- and 10-membered heteroaryl are 6,5-fused and 6,6-fused bicyclic rings, respectively, wherein at least 1 of the 2 fused rings of a bicyclic ring is

10/634,713

12

PC25298A

aromatic, and wherein when the O and S atoms both are present, the O and S atoms are not bonded to each other; and wherein each group and each substituent is independently selected.

8 (canceled).

9 (currently amended). The compound of ~~Formula II according to Claim 8,~~ selected from:

- 4-[5-(3-Benzylcarbamoyl-2,6-dioxo-3,6-dihydro-2H-pyrazin-1-yl)-tetrazol-2-yl]-benzoic acid;
- 4-(5-{2,6-Dioxo-3-[(pyridin-4-ylmethyl)-carbamoyl]-3,6-dihydro-2H-pyrazin-1-yl}-tetrazol-2-yl)-benzoic acid;
- 4-[3-(3-Benzylcarbamoyl-2,6-dioxo-3,6-dihydro-2H-pyrazin-1-yl)-prop-2-ynyl]-benzoic acid;
- 4-(3-{2,6-Dioxo-3-[(pyridin-4-ylmethyl)-carbamoyl]-3,6-dihydro-2H-pyrazin-1-yl}-prop-2-ynyl)-benzoic acid;
- 4-{2-[2,6-Dioxo-3-(3-phenyl-prop-1-ynyl)-3,6-dihydro-2H-pyrazin-1-yl]-oxazol-5-yl}-benzoic acid;
- 4-{2-[3-(3-Imidazol-1-yl-prop-1-ynyl)-2,6-dioxo-3,6-dihydro-2H-pyrazin-1-yl]-oxazol-4-yl}-benzoic acid;
- 4-{3-[2,6-Dioxo-3-(3-phenyl-prop-1-ynyl)-3,6-dihydro-2H-pyrazin-1-yl]-prop-2-ynyl}-benzoic acid;
- 4-{3-[3-(3-Imidazol-1-yl-prop-1-ynyl)-2,6-dioxo-3,6-dihydro-2H-pyrazin-1-yl]-prop-2-ynyl}-benzoic acid;
- 4-([2,6-Dioxo-3-(5-phenyl-oxazol-2-yl)-3,6-dihydro-2H-pyrazine-1-carbonyl]-amino)-methyl)-benzoic acid;
- 4-{3-[2,6-Dioxo-3-(5-phenyl-oxazol-2-yl)-3,6-dihydro-2H-pyrazin-1-yl]-prop-2-ynyl}-benzoic acid;
- 4-{5-[2,6-Dioxo-3-(4-phenyl-oxazol-2-yl)-3,6-dihydro-2H-pyrazin-1-yl]-tetrazol-2-yl}-benzoic acid; and

10/634,713

13

PC25298A

4-{3-[2,6-Dioxo-3-(4-phenyl-oxazol-2-yl)-3,6-dihydro-2H-pyrazin-1-yl]-prop-2-ynyl}-benzoic acid;
or a pharmaceutically acceptable salt thereof.

10 (canceled).

11 (original). A pharmaceutical composition, comprising a compound according to Claim 1, or a pharmaceutically acceptable salt thereof, admixed with a pharmaceutically acceptable carrier, excipient, or diluent.

12 (canceled).

13 (currently amended). A method for treating osteoarthritis or rheumatoid arthritis, comprising administering to a patient suffering from osteoarthritis or rheumatoid arthritis a nontoxic effective amount of a compound according to ~~Claim 1~~ claim 9, or a pharmaceutically acceptable salt thereof.

14 (canceled).